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IMAGES IN INTERVENTION

Simultaneous Thrombosis and Hemorrhage

Endovascular Approach to Both Conditions

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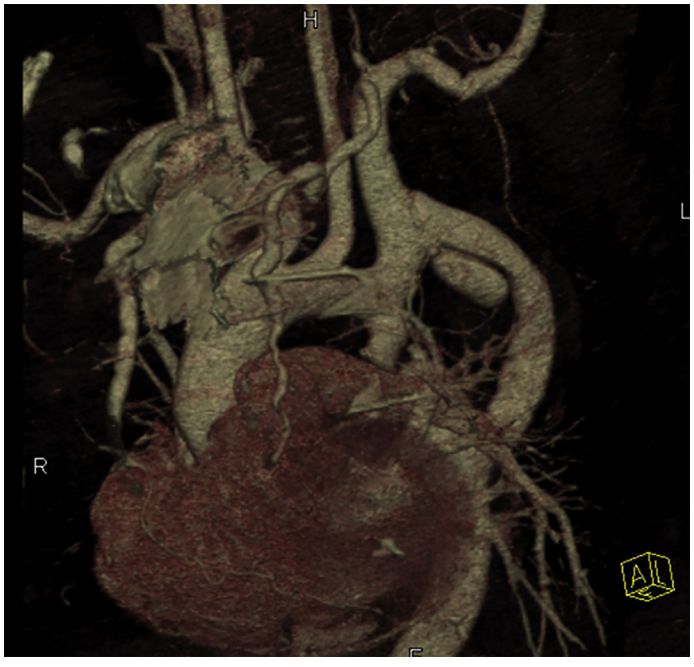
A 60-year-old man with pleuritic chest pain, coughs, and 3 episodes of massive hemoptysis presented to our hospital's emergency department. He had a history of surgical repair of coarctation of the aorta (CoA) 20 years earlier.

FIGURE 1 Computed Tomography Angiogram at Presentation



Computed tomography angiography shows a large outpouching adjacent to the subclavian aorta graft (pseudoaneurysm).

The patient was diagnosed with acute inferior myocardial infarction according to his electrocardiogram and rising cardiac enzymes. Nonetheless, this was not the whole story. Computed tomography angiography of the patient's thoracic aorta revealed a large and ruptured pseudoaneurysm adjacent to the surgical graft between the left subclavian artery and the descending thoracic aorta (**Figure 1**).

In this emergent situation, after successful primary angioplasty of the occluded right coronary artery via right radial access (**Figure 2**), we effectively excluded the ruptured pseudoaneurysm of the graft insertion site and inevitably the graft itself by deploying covered CP Stents (NuMED Inc., Hopkinton, New York) (**Figure 3**). Thereafter, we attempted to perform stent coarctoplasty of the native CoA site using a long self-expandable bare-metal stent and eventually succeeded in inserting an occluder in the previous graft to prevent retrograde perfusion into the fistula or the pseudoaneurysm site (**Figures 4 and 5**). The final angiogram (**Figure 6**) as well as follow-up computed tomography angiography (**Figure 7**) showed no endoleak. Additionally, the patient's clinical course was uneventful.

In the field of surgical or endovascular repair of CoA, it is not uncommon to encounter late complications such as recoarctation, dilatation, or dissection of the ascending or descending aorta, and formation of aortic pseudoaneurysms (1). Pseudoaneurysms following the surgical correction of CoA are likely to

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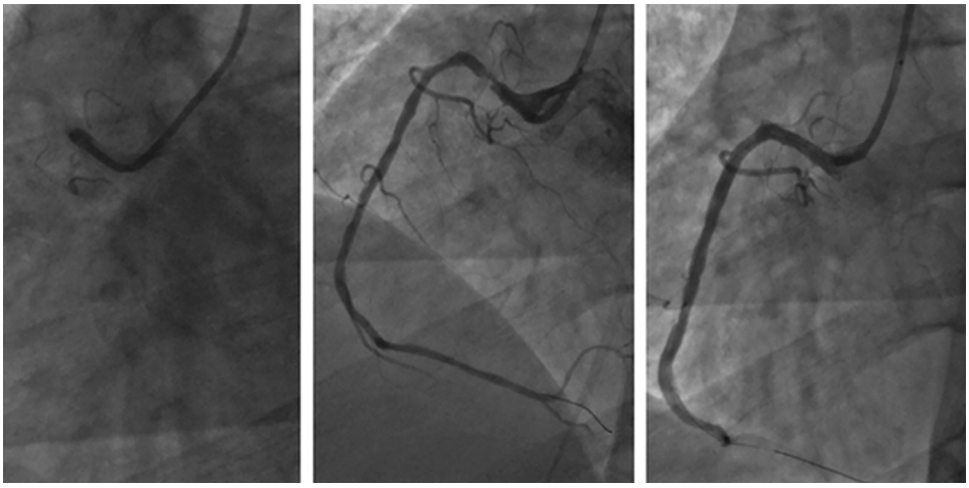
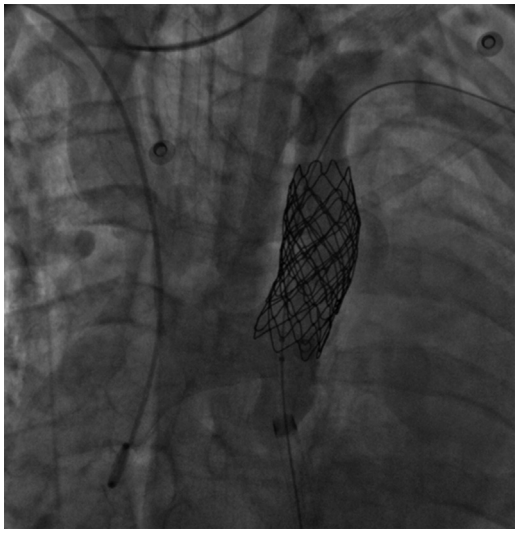
FIGURE 2 Primary Percutaneous Coronary Intervention



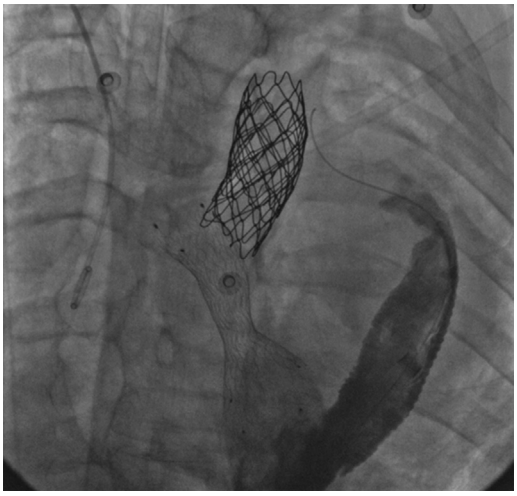
Primary angioplasty of the right coronary artery via right radial artery access.

FIGURE 3 Exclusion of Pseudoaneurysm



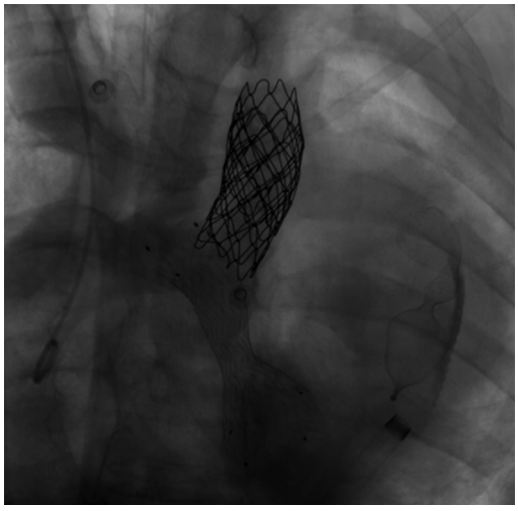
The ruptured pseudoaneurysm is completely excluded with 2 covered CP Stents deployed in the dilated left subclavian artery.

FIGURE 4 Recanalization of Coarctation



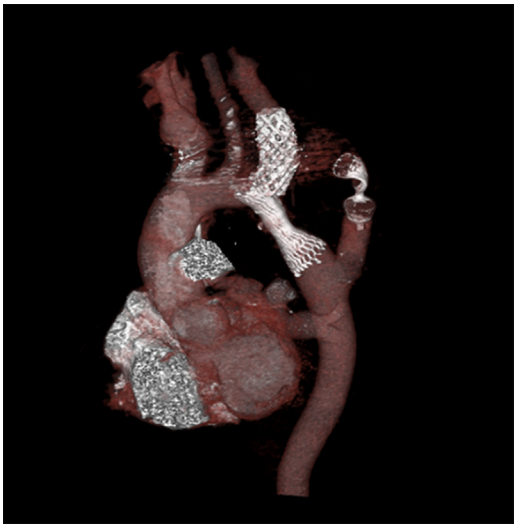
The native juxtaductal coarctation site is recanalized by deploying a long self-expanding bare-metal stent. However, there is a retrograde flow from the distal insertion site of the graft into the bleeding area.

FIGURE 5 Graft Occlusion



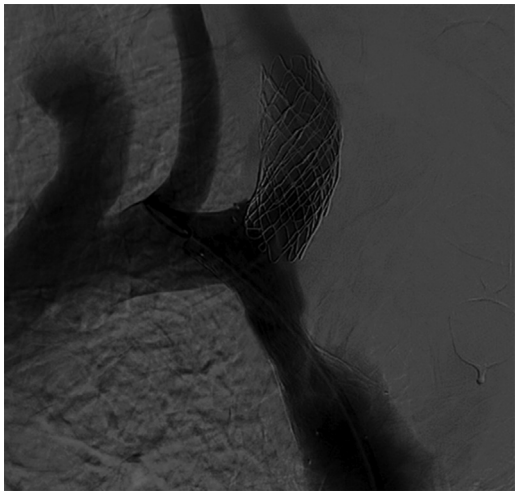
An atrial septal defect occluder device is inserted via the femoral access into the surgical graft to prevent the retrograde endoleak.

FIGURE 7 Follow-Up Computed Tomography Angiogram



Follow-up computed tomography angiography after 6 months shows no endoleak or complication.

FIGURE 6 Final Result



Final digital subtraction angiogram shows the complete exclusion of the pseudoaneurysm and an acceptable flow through the previous native coarctation site.

be a growing problem in the future. Aneurysm formation and rupture are responsible for approximately 7% of deaths (2). It is, therefore, important that these patients be maintained under lifetime surveillance including regular cross-sectional imaging.

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